ENCLOSURE 3

GLOBAL COMBAT SUPPORT SYSTEM (GCSS) IMPLEMENTATION PLAN

1.0 Origins of the GCSS.

Lessons learned from Operation Desert Storm pointed to the need for an integrated view of the battlefield for the Joint Warfighter. Command, Control, Communications, Computer and Intelligence for the Warrior (C^4IFTW) is the primary strategy for providing battlespace support to the Joint Warfighter. To implement the C^4IFTW strategy the Department developed the Global Command and Control System (GCCS) to rapidly deploy Command and Control capabilities across the CINCs, Services and Agencies. The GCCS approach focuses on the development of a common operating environment, common data environment and shared infrastructure services that enable interoperability between Command and Control applications and data.

Additional lessons learned from Operation Desert Storm highlighted combat support problems associated with tracking the status and location of personnel, supplies, and critical items such as Precision Guided Munitions. Although GCCS has made significant progress in solving the Command and Control problems, similar progress has not been achieved in the combat support arena. The GCSS builds on the technical developments and products, procedures and integration strategies which have been employed in GCCS to provide interoperability across combat support functions and between combat support and Command and Control functions. In a broad strategy, GCSS will build a little, test a little and field a lot.

1.1 Operational Needs. As depicted in Figure E.3-1 combat support operational needs will evolve in response to a number of factors, including change in military strategy, change in threat conditions, reengineering of combat support processes, and advances in information technology. The combat support operational needs must be addressed through a combination of process/procedural changes and technical solutions. GCSS will focus on providing the common environment and shared infrastructure that are required to rapidly deploy integrated combat support capabilities for the Warfighter. Cited below are examples of several critical combat support operational needs that will be supported by capabilities provided by the GCSS initiative. The exact operational needs addressed by GCSS and the order in which the capabilities are provided will be decided in conjunction with the Joint Staff, CINCs, Services, Agencies and Principal Staff Assistants.

1.1.1 Logistics - Asset Visibility. In order to plan for, execute and sustain operations, Joint Task Force (JTF) Commanders and their subordinate component commanders must have access to information relating to the flow of supplies (e.g., munitions, fuel, food, etc.). They need to know what supplies are available and whether they are in-theater, in-transit, inventoried in a supply depot or on order with a vendor. Currently, there is no integrated system that provides commanders with a complete picture of the logistics supply tail. This results in slower deployment times since units deploy with large amounts of supplies, delayed operations caused by the inability to track and reallocate critical items (e.g., Precision Guided Munitions), and inefficient operations since items are ordered without accurate information on availability. Asset Visibility was a major problem identified in after-action reports on Operation Desert Storm. Our existing logistics systems were designed to get assets to fixed points of supply, however they were not able to track and update supply information for units on the move. In this situation, thousands of containers filled with undelivered goods proved to be a vast waste of resources and limited combat effectiveness.

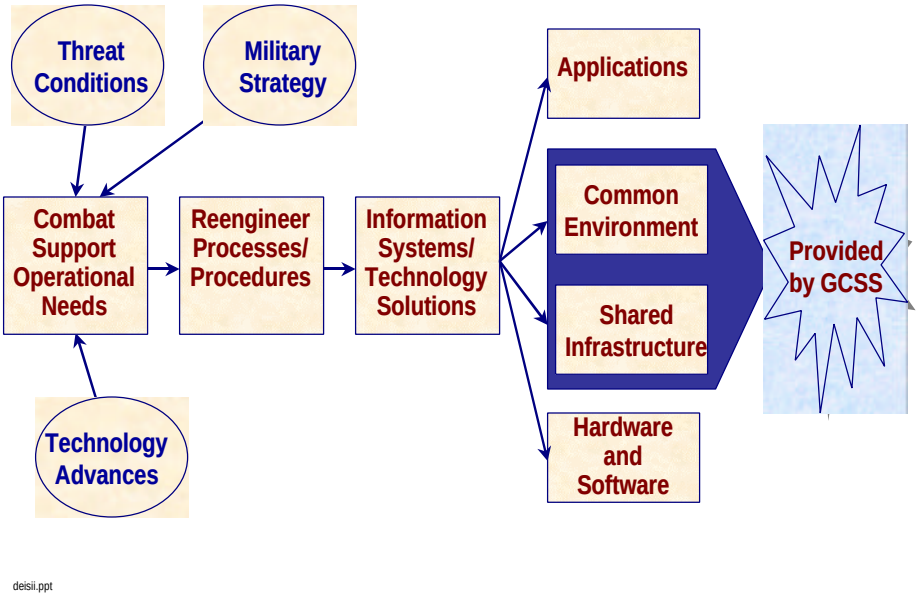

Figure E.3-1 - Combat Support Operational Needs

1.1.2 Personnel - Personnel Asset Visibility. JTF Commanders are required to know and request information on personnel under their command. Currently the JTF Commanders do not have, at their finger tips, information on each individual under their command, such as name, social security number, occupational specialty, language skill, location, unit, gender, service, etc. To find the required personnel the commander must send a message to each of the components requesting information. The recipients of the message then search their own "stove-piped" systems to satisfy the request. Recent experience shows that it typically takes an average of 8 hours for responses to return to the JTF Commander. In addition, component commanders do not have accurate information on the location of individuals, especially if they are deployed. If the component commanders could find accurate location data from their databases they could tell the JTF commander where these individuals are and how long it would take to get them in-theater. To meet this need for immediate person level information "home grown" systems have been developed by some component commanders. Most are not interoperable, do not use common services, and do not adequately protect the information.

1.1.3 Medical - Patient Tracking. At the tactical level, component commanders do not have an automated means to obtain or report individual patient or situational information to other echelons or back to the sustaining base. They currently rely on inadequate paper transactions. Medical teams need to exchange information among Services as the next level of care may be provided by a different Service, and up to higher echelons in theater and back to sustaining bases. There is currently no tactical or base level integration model that will enable this data exchange.

1.1.4 Finance/Procurement - Unmatched Disbursements. Today's acquisition process is dependent on hard copy documents that are distributed and repetitively entered into multiple systems. Observation and experience indicate that a significant number of unmatched disbursements (i.e., disbursement received by an accounting office that cannot be accurately matched to the correct obligation records) are caused by inaccurate or incomplete data within the different systems, resulting in payments charged to wrong lines of accounting. Data entry errors and the lack of timely distribution of contract documents among program managers, contracting offices, contract administration offices, payment offices, and accounting offices are the major contributors to unmatched disbursements. Other contributing factors are a high percentage of payments which must be manually processed, non-uniform contract struc-

ture and format, use of multiple funding sources for a single contract line item, complex progress payment procedures, and the lack of standard automated systems. These problems have cost the DoD billions of dollars which could have been spent on combat operations.

1.1.5 Logistics - Weapons Systems Configuration Management. The warfighting community has a need for integrated weapon system configuration management, encompassing the entire life-cycle of the weapon system. The information systems supporting weapon system configuration management today are stove-piped between retail and wholesale and often by weapon system. The consequence is bad or missing configuration data that causes one or more units of a weapons system to be non-operational and reduce overall readiness and combat effectiveness. Currently, DoD is developing and deploying a standard configuration management system, but only at the wholesale level. There are no provisions for sharing configuration data with the multiple field level maintenance systems in the Services or for the Service systems to share data with the wholesale level depots, inventory control points, and weapon system management offices. Many of these field level maintenance systems deploy with weapon systems to the battlefield without the ability to track configuration changes.

1.3.6 Electronic Commerce. Recent experiences in the DoD (e.g., Medical Logistics) have proved the effectiveness of Electronic Commerce (EC) to rapidly procure critical items, reduce costs, simplify business transactions, reduce paperwork, decrease inventory, and increase transaction reliability. Despite its benefits, EC throughout the DoD is being implemented through a multitude of Service and Agency initiatives with disparate directions. DoD components use a variety of platforms, processors, networks, and transaction data standards to conduct EC. The systems are "stove-piped" and many use proprietary software and communications protocols. To do business electronically, an industry trading partner has to meet a different set of requirements for each DoD activity. Current efforts to solve these problems have focused on small purchase procurement. The scope of EC must be expanded to include Government-to-Government traffic as well as traffic between Government and industry trading partners for Contract Administration, Transportation, Supply Management, Financial Management, Maintenance and Engineering.

1.2 Combat Support Information Technology Environment. Figure E.3-2 provides an overview of the current and future combat support information technology environments. The current environment on the left is characterized by:

- Stove-Piped Applications
- Incompatible Architectures
- Redundant Hardware and Software
- Proprietary Products
- Multiple Data Sources and Conventions
- Paper and Non-Standard Transactions

GCSS will provide the common environment and shared infrastructure that are the necessary building blocks for information exchange and interoperability. Characteristics of the future environment are:

- Common Applications
- Shared Data
- Shared Hardware and Reusable Software Modules
- Commercial-off-the-Shelf Solutions
- Standard Electronic Transactions
- Shared Infrastructure Services

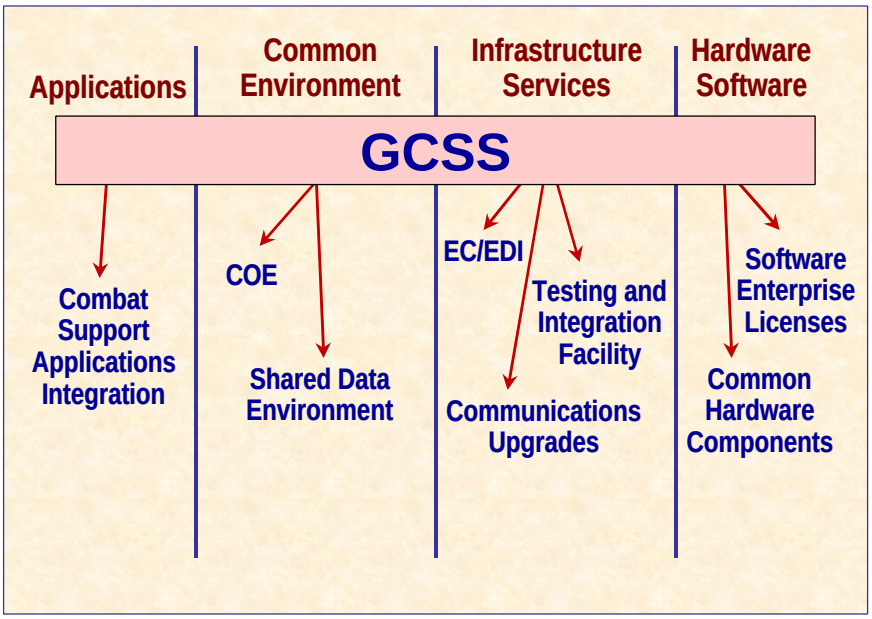

Figure E.3-2 - GCSS Capabilities

1.3 Capabilities Provided by GCSS. GCSS is a subset of the Defense Information Infrastructure (DII). In conjunction with other DII elements including Global Command and Control System (GCCS), Defense Information Systems Network (DISN), Defense Message System (DMS), Megacenters and CINC/Service/Agency projects, GCSS provides the information technology capabilities required to move and sustain joint forces. Each of these elements provide a combination of application, common environment, shared infrastructure, and hardware and software capabilities. Figure E.3-3 shows the scope of capabilities provided by each of these DII elements. While GCSS provides the common environment, shared infrastructure, and shared hardware and software, the CINC/Service/Agency projects provide the applications and non-shared components. GCSS will also provide for the integration of combat support applications into the GCSS environment. Although GCSS is a technical initiative, its success depends on achieving results that strengthen combat and combat support mission performance. Further it must achieve these results in an efficient manner. GCSS will provide the common technical solutions that are required to satisfy combat support operational needs. Combined with capabilities from other DII elements and process/procedural changes, GCSS will make available to the Joint Warfighter the necessary information to ensure mission success through effective preparation, support and sustainment. As depicted in Figure E.3-4, GCSS will provide the following specific technical capabilities:

- **Combat Support Applications Integration.** Services that support the integration of applications and data into the common operating and shared data environments. This includes: application segmentation, database co-hosting, shared database integration, application re-engineering to use the common operating environment and implementation of the DII integration standard (DII COE I&RTS).

- **Common Operating Environment.** Services that support the development of common reusable software modules that enable interoperability across multiple combat support applications. This includes: segmentation of common software modules form existing applications, integration of commercial products, development of a common architecture and development of common tools for application developers.

- **Shared Data Environment.** Services that support the implementation and maintenance of data resources that are used by two or more combat support applications. Services provided include: identification of common data, physical data modeling, data base segmentation, development of data access and maintenance routines and data base re-engineering to use the common data environment.

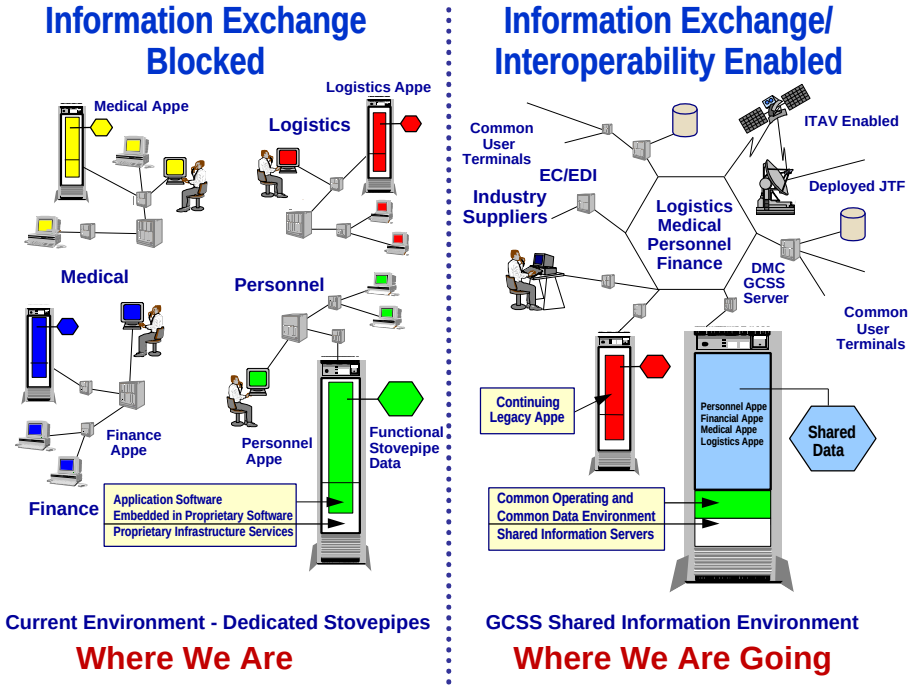

Figure E.3-3 - GCSS Environment Enables Interoperability

- **EC/EDI Infrastructure.** The common technical components and services to support electronic transactions across the DoD. Key components include Network Entry Points, Gateways, Compliance Test Facility, Central Contractor Registration, Customer Service Center and connectivity between all these entities and Value Added Networks.

- **Communications Upgrades.** The expanded Non-Classified Internet Protocol Router Network (NIPRNET) communications services to support effective data exchange between fixed sites and from deployed forces to the sustaining base. Upgrades include installation of Asynchronous Transfer Mode (ATM) Switches at ten sites, connection to existing Internet Protocol Routers at twenty-four sites, leasing of transmission circuits to connect the sites and implementation of network management services for the ATM backbone.

- **Testing and Integration Facility Including Continuity of Operations and Processing Surge Support.** Services that support application testing in an operational environment prior to deployment. Also provides services for continuity of operations for GCSS sites and surge processing in support of deployed forces.

- **Common Hardware Components.** Services that support the acquisition, delivery and installation of common hardware. Shared hardware includes: database machines with mid-tier servers, application servers, local area network components and wide-area network switches.

- **Software Enterprise Licenses.** Services that support the acquisition and delivery of common software. Enterprise licenses will be acquired for operating systems, database management systems and commercial-off-the-shelf support applications such as word processors.

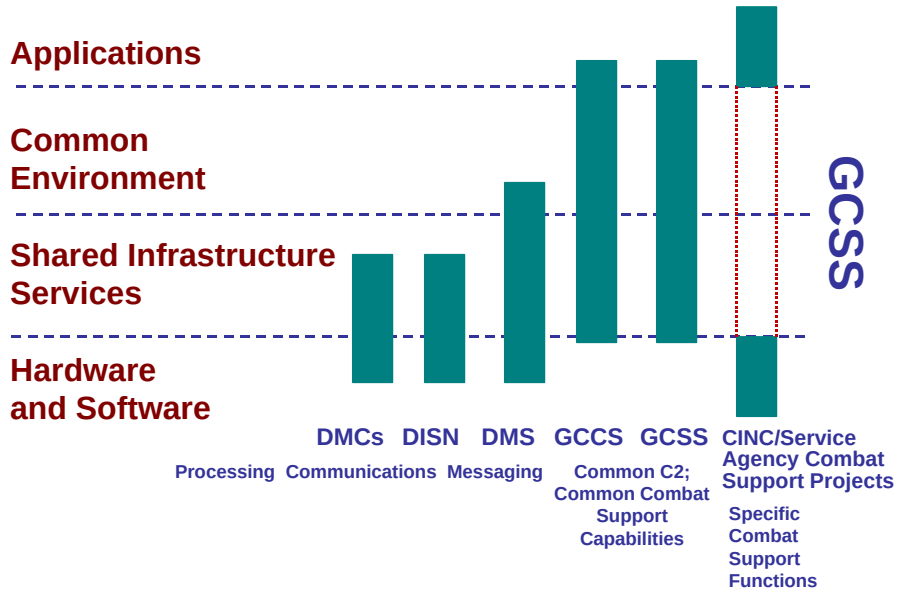

Figure E.3-4 - GCSS Technical Capabilities